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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,669	03/26/2001	George J. Hudak	10003916-1	9797

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EXAMINER
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MACCHIAROLO, PETER J

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/817,669

Applicant(s)

HUDAK, GEORGE J.

Examiner

Peter J Macchiarolo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 8 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 09 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Prosecution Application***

1. The request filed on June 9, 2003 for a Continued Examination (RCE) under 37 CFR 1.114 is acceptable and a first Office Action on the RCE follows.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the magnetron as recited in claim 3, and heater as recited in claims 1, 2, 21, 25, and 26 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-5, 7-8, and 21-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the

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relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. Independent claims 1 and 21 recite the limitation, “a heater imparting heat to the gas sample in the cooling zone,” which is not supported in the Specification or the Drawings. The Examiner notes that at page 4, lines 16 and 17, Applicant asserts that “[e]nergy is introduced into a cavity 42 that surrounds the circumference of the gas discharge tube 10,” which may be construed as heat being applied to cavity 42. However, claim 1 recites that the heat is directed to the gas sample that is in the cooling zone, i.e. passageway 20 and 20’ at figure 2, not to the cavity 42. As further evidence that this rejection is proper, the word “heater” is not present in the specification. For the remainder of the application, the Examiner is interpreting the heater to be a plasma discharge.

6. Additionally, claims 2-5, 7, 8, 25, and 26 further limit the claimed heater, and are also rejected under 35 U.S.C. 112, first paragraph as containing new subject matter.

7. Claims 22-24 depend from independent claim 21 and therefore are also rejected.

***AS BEST UNDERSTOOD, THE FOLLOWING ART REJECTIONS APPLY***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

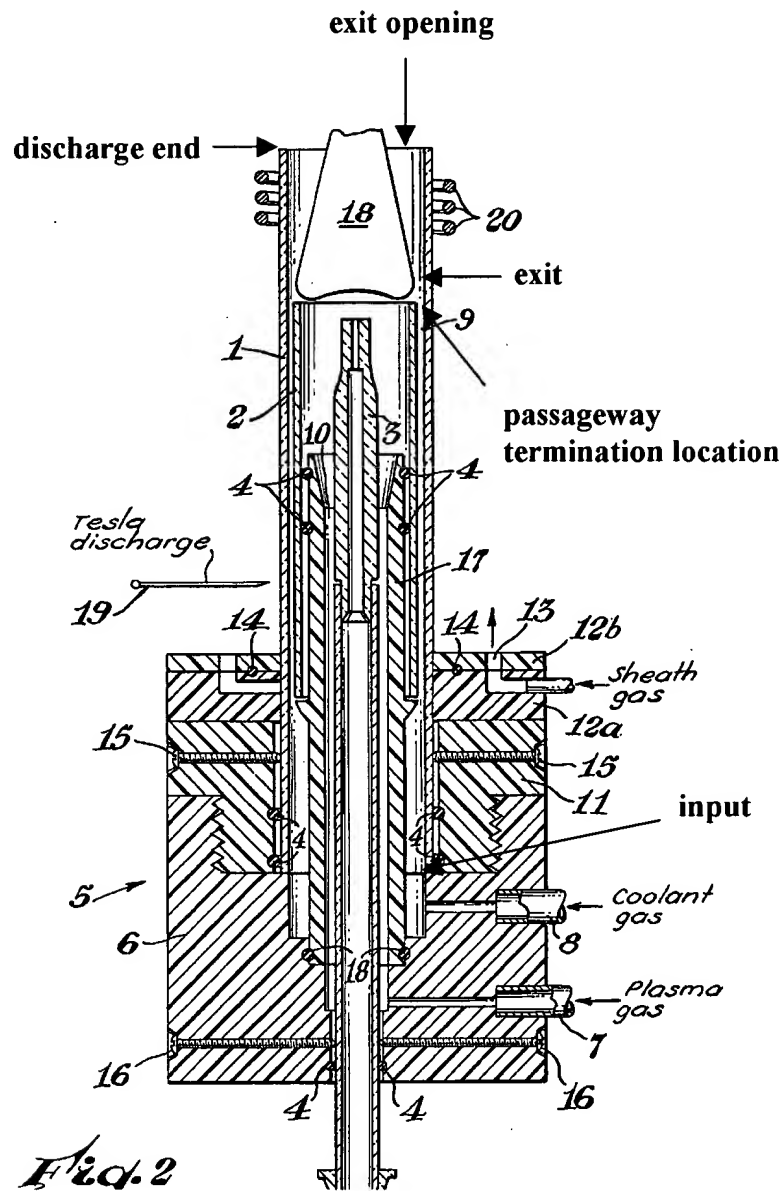
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 21, 22, 25, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer et al (USPN 4,482,246; henceforth “Meyer”).

9. In regards to claim 21, Meyer discloses in figure 2, an air-cooled gas discharge detector comprises a gas discharge tube (1) for carrying a gas sample from the detector, the tube having an exit opening (below) at its discharge end through which the gas sample escapes, an enclosed passageway (9) surrounding the gas discharge tube, such passageway having an input and exit (below) for movement of contained cooling air supplied thereto, such gas coming in contact with the outer surface of the discharge tube to form a cooling zone along such tube, the enclosed passageway does not extend to the discharge end of the discharge tube (below), and a heater (18) imparting heat to the gas sample in the cooling zone as the sample gas moves through the gas discharge tube (column 7, lines 66-68). Meyer further discloses in column 3 lines 3-10, that the heater (18) is powered by a radio frequency source, an art equivalent of microwave energy source, which is located outside the passageway.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer.
11. In regards to claim 1, Meyer discloses in figure 2 and column 4 lines 34-43, an air-cooled gas discharge detector comprises a containing tube (1) that can be made from alumina, the tube having an exit opening at its discharge end, an enclosed air passageway (9) having air entry and exit openings for movement of contained cooling air, the passageway being in contact with at least a portion of the outer surface of the gas discharge tube to form a cooling zone for such tube, the enclosed passageway terminating before the discharge end of the discharge tube, and an air source for supply a flow of air into the entry opening of the encloses passageway for cooling the outer surface of the gas discharge tube. Meyer further teaches in column 3 lines 3-10, that the heater (18) is powered by radio frequency source.
12. Meyer is silent to the tube being made from sapphire.
13. However, it is well known in the art that alumina is any of several forms of aluminum oxide,  $\text{Al}_2\text{O}_3$ , including sapphire. It is further known in the art that sapphire is extremely resilient and a good conductor of heat, which allows for efficient cooling.
14. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the gas discharge detector of Meyer, including a sapphire

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gas discharge tube, since it is well known in the art that alumina is a form of sapphire which is extremely resilient and a good conductor of heat, which allows for efficient cooling.

15. In regards to claims 3 and 4, Meyer teaches all of the recited limitations of claim 2 (above).

16. Meyer further teaches in figure 2 that the radio frequency is introduced into a cavity defined by an inner wall (3), two side walls (2) and an outer wall (1) and wherein the inner wall surrounds at least a portion of the gas discharge tube, and the air passageway extends alongside at least a portion of an exterior of the side walls.

17. Meyer is silent to a magnetron generating the radio frequency.

18. However, the Examiner takes official notice that it is well known in the art for a conventional magnetron to be utilized for a microwave power source, and further, it is well known a magnetron is more capable of producing suitable power, and it can be easily employed with great success.

19. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the air cooled detector of Meyer, including a magnetron, since it is well known in the art that a magnetron is more capable of producing suitable power, and it can be easily employed with great success.

20. In regards to claims 7 and 8, Meyer teaches all of the recited limitations of claim 5 (above).



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21. Meyer further teaches in column 2, lines 20-23 that an air compressor may be used as an air source for producing high-pressure air to efficiently cool a tube.

22. Meyer is silent to the air source being an on board air pump.

23. However, the Examiner takes official notice that it is extremely well known in the art to substitute an air pump for a central compressor for producing high-pressure air to efficiently cool a tube.

24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the detector of Meyer, including an air pump, since it is extremely well known in the art that an air pump or a central compressor are reliable and proven air sources capable of producing high-pressure air to efficiently cool a tube.

25. In regards to claims 23 and 24, Meyer discloses all of the recited limitations of claim 22 (above).

26. Meyer is silent to the gas discharge tube being no more than 10 millimeters in length.

27. However, Applicant has disclosed at page 1, lines 16-20 that it is known in the art to use a discharge tube with dimensions on the order of 1mm diameter by 5-10mm in length, and these dimensions are known to allow for effective removal of excess heat. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

28. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the gas discharge detector of Meyer, including the tube being on the order of 1mm diameter by 5-10mm in length, since Applicant has disclosed that

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these dimensions are known in the art to allow for effective removal of excess heat, and further, one of ordinary skill would be able to discover the optimum dimensions.

***Conclusion***

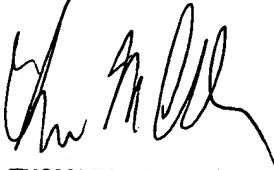
29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (703) 305-7198.

The examiner can normally be reached on 7.30 - 4:30, M-F.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

31. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

pjm  
August 14, 2003



**THOMAS M. SEMBER**  
**PRIMARY EXAMINER**